

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
27 November 2003 (27.11.2003)

PCT

(10) International Publication Number
WO 2003/097946 A3

(51) International Patent Classification⁷: E02F 7/00,
3/08, 3/10, 5/02

(21) International Application Number:
PCT/US2003/015565

(22) International Filing Date: 15 May 2003 (15.05.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/147,834 17 May 2002 (17.05.2002) US
60/444,839 4 February 2003 (04.02.2003) US

(71) Applicant and

(72) Inventor: BAINTER, Wasley, Allen [US/US]; P.O. Box
705, Hoxie, KS 67740 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD,
SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US,
UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

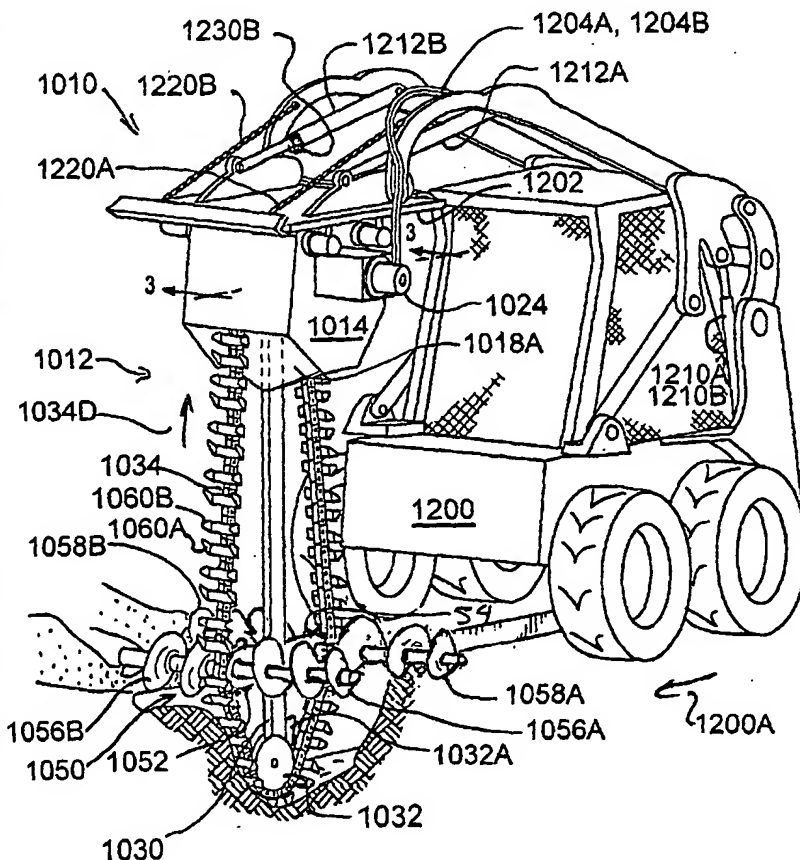
(74) Agent: BLINN, Robert, O.; P.O. Box 75144, Wichita, KS
67275-0144 (US).

Declaration under Rule 4.17:

— of inventorship (Rule 4.17(iv)) for US only

[Continued on next page]

(54) Title: TRENCHER



(57) Abstract: The trencher of the present invention includes a wheeled carriage (12) which has a steering mechanism and a digging chain (72) which operates along an upright path. The trencher includes an upright boom structure (60) that is mounted to the carriage and a digging chain support frame (64) that can be raised and lowered relative to the trencher along an upright path. The digging chain (72) is mounted to the digging chain support frame (64) by a powered sprocket wheel (70) and a freely turning pulley wheel (71). The sprocket wheel (70) and the pulley wheel (71) are positioned so that the digging chain describes an upright path. The path described by the digging chain is sufficiently upright so that the trencher can excavate a curved trench without the digging chain interfering with the walls of the trench to a degree that is sufficient to impede the operation of the trencher.



Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:

15 April 2004

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/15565

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : E02F 7/00, 3/08, 3/10, 5/02

US CL : 37/352,353,357,359,360,356,363,364,464; 180/235,418

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 37/352,353,357,359,360,356,363,364,464; 180/235,418

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3,771,241A (LINDELL et al) 13 November 1973 (13.11.1973), see whole document.	1, 2, 4, 6-11, 13, and 15-18
X	US 3,603,010 A (POLLNEK) 7 September 1971 (07.09.1971), see whole document.	1-21
X	US 4,974,348 A (WALLACE) 04 December 1990 (04.12.1990), see whole document.	1-21

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

26 June 2003 (26.06.2003)

Date of mailing of the international search report

20 FEB 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No.

Authorized officer

Thomas Will
Telephone No. 703.306.4198